Amendments to the Claims

The following listing of the claims replaces all prior listings.

1. (currently amended) A sensor comprising:

a substrate;

a confinement structure created from materials applied to the substrate by deposition, wherein the confinement structure comprises at least a first limiting structure defining a first interior space; a transducer proximal to the first interior space, said transducer being contained by the confinement structure; and

a first synthetic polymer capable of selectively binding a first analyte, ~~within~~ wherein the confinement structure is filled~~, wherein~~ with the first synthetic polymer ~~is~~ such that the first synthetic polymer lies against an inner wall of the confinement structure, the first synthetic polymer being immobilized by ~~trapped in~~ the confinement structure~~,~~ to prevent peeling of the first synthetic polymer from the substrate.

2. (original) A sensor as claimed in claim 1, wherein the confinement structure further comprises a second limiting structure defining a second interior space, the second interior space containing the first interior space.

3. (previously presented) A sensor as claimed in claim 2, wherein the confinement structure further comprises one or more further limiting structures defining one or more further interior spaces, the one or more further interior spaces, the one or more further interior spaces each containing an interior space.

4. (previously presented) A sensor as claimed in claim 1, wherein the first synthetic polymer capable of selectively binding a first analyte is disposed in the first interior space.

5. (previously presented) A sensor as claimed in claim 3, wherein the first synthetic polymer capable of selectively binding a first analyte is disposed in a space selected from the group consisting of: the second interior space, and a further interior space.

6. (previously presented) A sensor as claimed in claim 1, wherein the internal diameter of the first limiting structure is about 10-350 μm.

7. (previously presented) A sensor as claimed in claim 1, wherein height of the first limiting structure is about 1-10 μm.

8. (previously presented) A sensor as claimed in claim 2, wherein the internal diameter of the second limiting structure is about 50-600 μm.

9. (previously presented) A sensor as claimed in claim 2, wherein the height of the second limiting structure is about 1-100 μm.

10. (previously presented) A sensor as claimed in claim 2, wherein the limiting structures of the confinement structure are annular.

11. (previously presented) A sensor as claimed in claim 1, wherein the sensor further comprises:

at least one additional confinement structure as defined in any preceding claim;

a transducer proximal to the first interior space of each of the at least one additional confinement structures; and

a material contained within the at least one additional confinement structure, wherein the material is selected from the group consisting of: the synthetic polymer capable of selectively binding a first analyte, a further synthetic polymer capable of selectively binding a further analyte, and a reference material.

12. (previously presented) A sensor as claimed in claim 1, wherein the first synthetic polymer is a molecularly imprinted polymer.

13. (previously presented) A sensor as claimed in claim 1, wherein the first synthetic polymer is a polymer capable of selectively binding a substance selected from the group consisting of: morphine, propofol, an antibiotic and IMA.

14. (original) A sensor as claimed in claim 11, wherein the further synthetic polymer is a molecularly imprinted polymer.

15. (original) A sensor as claimed in claim 11, wherein the sensor comprises at least one additional confinement structure having a reference material therein, and the first synthetic polymer is a molecularly imprinted polymer and the reference material is a corresponding non-imprinted polymer.

16. (previously presented) A sensor as claimed in claim 1, wherein a space selected from the first, second and further interior space contains a material selected from the group consisting of a conducting material and a mediator.

17. (original) A sensor as claimed in claim 16, wherein the conducting material is an electrolyte.

18. (previously presented) A sensor as claimed in claim 1, wherein the at least one confinement structure further comprises one or more additional substance which provides a specific environment therein.

19. (previously presented) A sensor as claimed in claim 18, wherein the specific environment is a non- aqueous environment.

20. (previously presented) A sensor as claimed in claim 1, wherein the transducer is disposed on the substrate.

21. (previously presented) A sensor as claimed in claim 1, wherein the transducer is selected from the group consisting of: an electrochemical, conductimetric, optical, fluorescent, luminescent, absorption, time-of- flight, gravimetric, strain or displacement, surface-acoustic wave, resonant, thermal transducer, and combinations thereof.

22. (previously presented) A sensor as claimed in claim 1, wherein the substrate is a silicon wafer.

23. (previously presented) A sensor as claimed in claim 1, wherein the substrate is substantially planar.

24. (previously presented) A sensor as claimed in claim 1, wherein the confinement structure is fabricated from a polyimide.

25. (previously presented) A method of detecting a target species in a sample comprising contacting a sensor as claimed in claim 1 with a sample containing or suspected to contain the target species.

26. (original) A method as claimed in claim 25, wherein the sample is returned to the patient.

27. (withdrawn) A method as claimed in claim 25, wherein the sample is not returned to the patient.

28. (previously presented) A sensor as claimed in claim 1, wherein the first synthetic polymer is a polymer capable of selectively binding a substance selected from the group consisting of: morphine, propofol, an antibiotic, and IMA; wherein a space selected from the first, second and a further interior space contains a material selected from the group consisting of a conducting material and a mediator; and wherein the transducer is selected from the group consisting of: an electrochemical, conductimetric, optical, fluorescent,

luminescent, absorption, time-of-flight, gravimetric, strain or displacement, surface-acoustic wave, resonant, thermal transducer, and combinations thereof.

29. (previously presented) A sensor as claimed in claim 1, wherein the first synthetic polymer is a polymer capable of selectively binding propofol; wherein a space selected from the first, second and a further interior space contains a conducting material; and wherein the transducer is an electrochemical transducer.

30. (currently amended) A sensor comprising:

a substrate;

a first and at least one additional confinement structure disposed on the substrate, wherein each confinement structure comprises at least a first limiting structure defining a first interior space and a transducer proximal to the first interior space;

a molecularly imprinted synthetic polymer capable of selectively binding a first analyte ~~confined in~~filling the first confinement structure such that the molecularly imprinted synthetic polymer lies against an inner wall of the first confinement structure, the molecularly imprinted synthetic polymer being immobilized by the confinement structure; and

a reference material ~~confined in~~filling the at least one additional confinement structure, wherein the reference material is a corresponding non-imprinted synthetic polymer, the sensor being arranged to carry out a differential measurement between the first confinement structure and the at least one additional confinement structure.

31. (new) A sensor as claimed in claim 1, wherein the first synthetic polymer is a layer that lies against the inner wall of the confinement structure such that the first synthetic polymer covers one or more interior spaces.

32. (new) A sensor as claimed in claim 1, wherein the confinement structure is filled with the first synthetic polymer such that the first synthetic polymers covers a bottom surface of the first interior space.

33. (new) A sensor as claimed in claim 1, wherein the confinement structure is filled with the first synthetic polymer such that the first synthetic polymer completely fills the first interior space.